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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/085,429	02/28/2002	Hiroshi Nakamura	P 0284606 3KG032528US AA	3196

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EXAMINER

THOMPSON, GREGORY D

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
10/085,429

Applicant(s)
Nakamura et al

Examiner
Gregory Thompson

Art Unit
2835



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Feb 28, 2002
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 16, 19-21, 24-28, and 35-40 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26-28 is/are allowed.
- 6) ☒ Claim(s) 1-7, 10-13, 19-21, 24, 25, and 35-40 is/are rejected.
- 7) ☒ Claim(s) 8, 9, and 16 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4, 7 6) ☐ Other: _____

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1. Applicant's election without traverse of Figs. 1-13 with claims 1-13, 16, 19-21, 24-28, and added claims 35-40 readable thereon 5/20/03 in Paper No. is acknowledged.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 10-13, 24-25, 35-40 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Ostergren et al.

The cooling unit is composed of sink 27, heat diffusing member 23, first heat conducting member 34 interposed between package component 20 and member 23, and second heat conducting member 33 interposed between member 23 and heat sink 27. Sink 27 has area dimensions greater than component 20. Member 23 composed of copper would inherently have a higher thermal conductivity than member (grease) 33. Member 34 has higher conductivity than member 33. Member 23 has area dimensions greater than component 20. The spring is 26 extending from member 23 urging member 23 toward component 20. First member 34 is less thick than second member 33. The second contact surface is labeled in Fig. 3 extending from just above left lip 24 through opening 25 to right lip 26. The heat receiving portion would be sidewall 28 held in contact with second member 33. The heat exchange portion would be the fins attached to sink 27 in which cold air is blown over to dissipate heat. The gap between package 20 and member 23 is narrower than the gap between member 23 and sink 27.

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Regarding claim 37, the heat conducting member would be 33.

Regarding claims 12 and 40, it is inherent that the cold air that is blown as discussed in col. 5, lines 11-14 would be inherently blown by a common cooling fan as known to one skilled in the cooling art.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ostergren et al in view of Murayama et al.

The cooling unit composed of the structure of heat sink, heat diffusing member, first and second heat conducting member, higher thermal conductivity, area dimensions, gaps already discussed in paragraph 2 above.

The substrate of claim 21 would be substrate 21 in Ostergren.

Ostergren does not teach nor suggest the thermal conduction module contained in a housing to provide an electronic apparatus.

Murayama discloses a thermal module (heat sink) in Figs. 15-17 in a housing 2 for protecting and to cool a component 93 in housing 2.

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Therefore, it is considered obvious to one skilled at the time of the invention to provide the cooling unit and substrate 21 of Ostergren in a housing 2 taught by Murayama to provide protection to the cooling unit and substrate 21 ~~and substrate 21~~ and to provide an electronic apparatus to preform an electrical function with the cooling unit providing excellent cooling to the component 20 mounted on substrate 21 for proper operation of the electronic apparatus.

4. Claims 1-7, 10, 13, 19-21, 24-25, 35-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Shibasaki.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

The electronic apparatus with a housing is 4, heat sink is 27, component 15, heat diffusing member 26, first heat conducting member 29, second heat conducting member 40. Member 26 being composed of Al would inherently have a thermal conductivity higher than grease member 40 and has area dimensions greater than component 17. The spring(s) would be 82 in Fig. 9. Member 29 is less thick than member 26. Member 29 has a higher conductivity than member 40. Gap between component 15 narrower than gap between member 26 and sink

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27. Substrate is 40. Spring 82 extends from member 26 urging member 23 toward component 20.

5. Claims 8-9, 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 26-28 are allowed.

7. Claims 8-9, ²⁶⁻²⁸16 are allowable for the cited art does not teach nor suggest a diffusing member having a plurality of engaging sections to engage respective corners of a component, tongues to be removably hooked to the component, and a diffusing member rigidly secured to a base substrate bearing the component as claimed in claims 8-9, ²⁶⁻²⁸16, respectively.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Greg Thompson whose telephone number is 308-2249. The examiner can normally be reached on Mon-Thurs. from 6:00am to 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg, can be reached on (703) 308-4215. The fax phone number for the organization where this application or proceeding is assigned is 305-3431.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-1782.

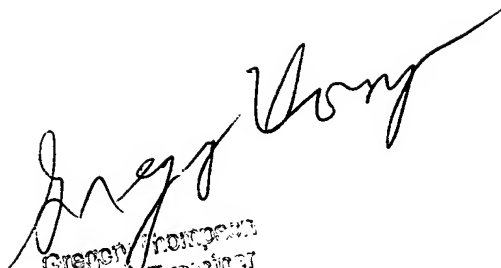
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Thompson/ek

07/25/03


Greg Thompson
Primary Examiner